This recycle mark indicates that the packaging conforms to the environmental protection legislation in Germany.

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CASIO

CASIO COMPUTER CO., LTD.
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Shinjuku-ku, Tokyo 163-02, Japan

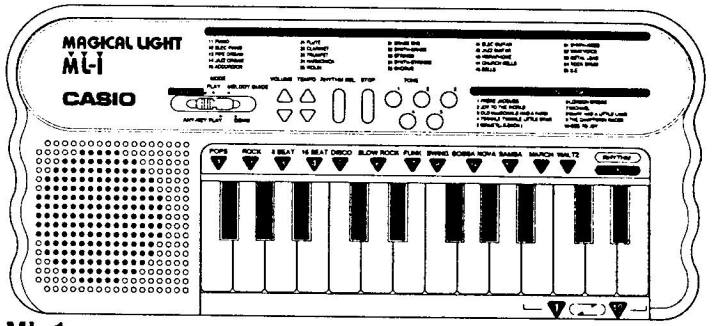
MA0441C (英) (西) Printed in Thailand
ML1ML2ES-1

4136-920-0-01

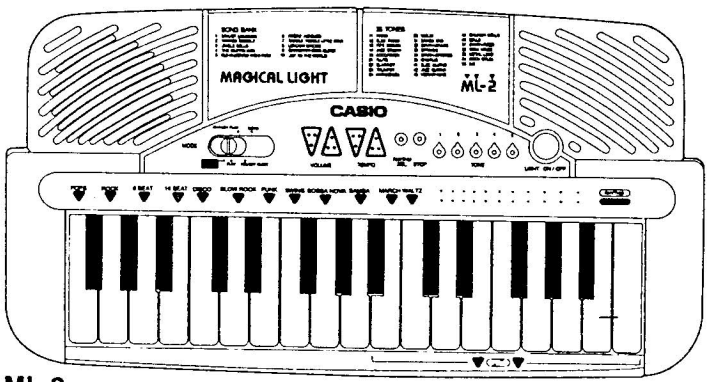
MAGICAL LIGHT ML-1/ML-2

ELECTRONIC MUSICAL INSTRUMENT
INSTRUMENTO MUSICAL ELECTRONICO

OPERATION MANUAL·····2
MANUAL DE OPERACION···22



ML-1



ML-2

CASIO

(英) (西)
ML1ML2ES-1

Introduction

Congratulations on your purchase of the CASIO ML-1/ML-2 keyboard. This manual covers operation of both models, and you should note the following points when using it.

- The illustrations for the operational examples of this manual show either the ML-1 or ML-2 only. Because of this, the appearance of the buttons or other controls on your keyboard may differ slightly from the ones shown in the illustration.
- Explanations of operations or functions available on the ML-2 only, are marked "ML-2 only."

Be sure to read the contents of this manual carefully to learn how to use the keyboard to its full potential.

Please keep all information for future reference.

Main Features

- Magical Light Keyboard with keys that light up when notes are played.*
- 10 built-in Song Bank tunes
- Three functions for melody practice
- 12 rhythms
- 25 tones

* Black keys do not light up with ML-1.

Important!

If do not perform any operation for about three minutes, a warning melody plays and the keys on the keyboard flash to remind you to switch power off.

Any one of the following symptoms indicates low battery power. Replace batteries or change to one of the alternate power sources whenever you notice any of these conditions.

- Abnormally low speaker or headphone volume
- Distorted sound output
- Continued sound output even after you release a key
- No output when a key is pressed, even though the key lights
- Continued lighting of a key even after you release it
- Sudden loss of sound output.
- Low keyboard lighting or complete failure of keyboard lighting when notes are played.
- A note that is totally different from the one you played
- Abnormal rhythm pattern and Song Bank tune play
- Failure of keyboard keys to light

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GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A (not applicable to other areas).

NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

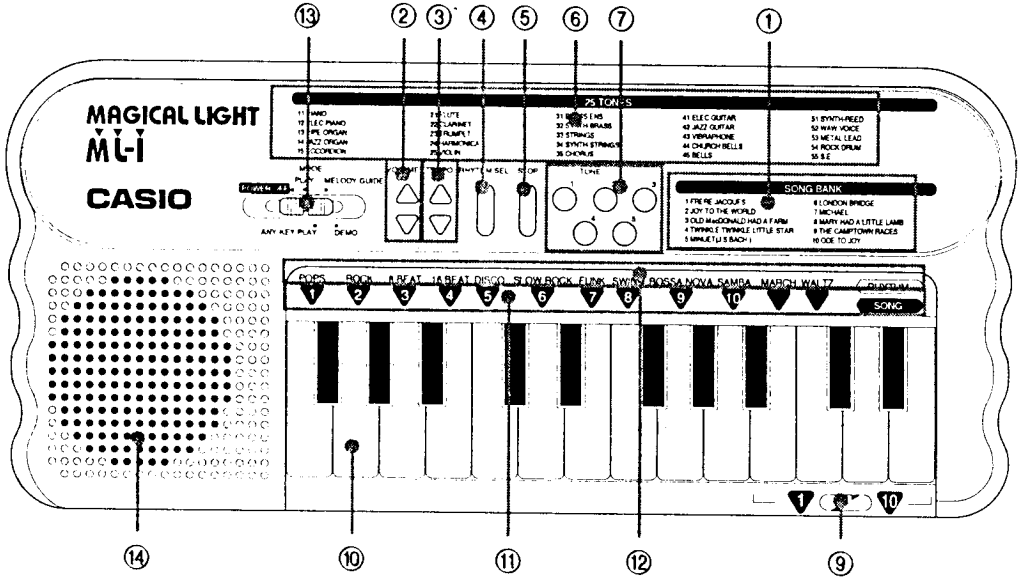
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC WARNING

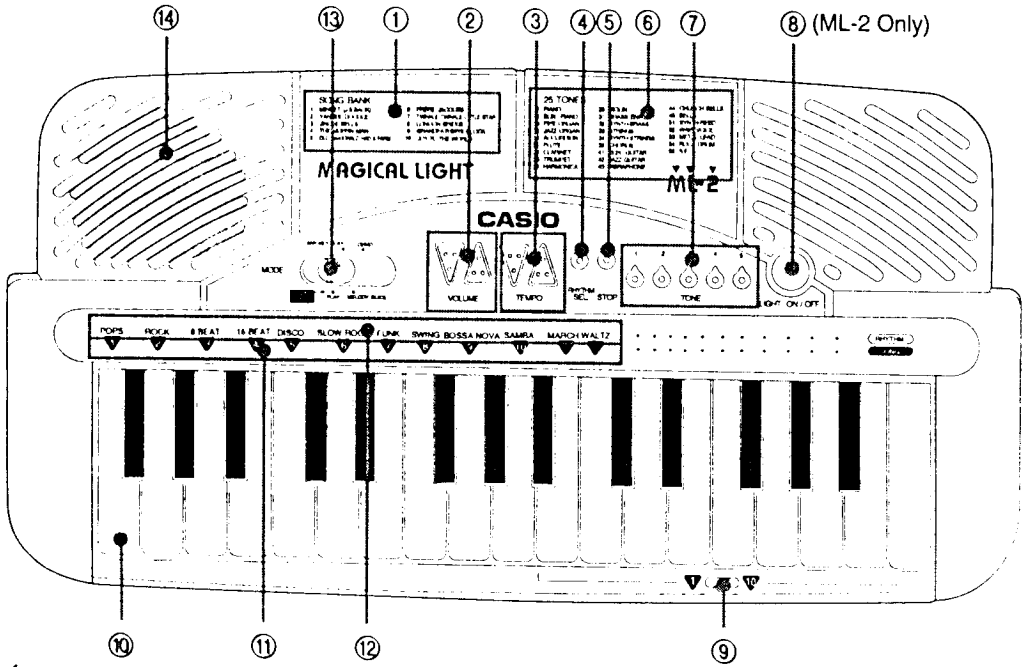
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

GENERAL GUIDE

<< ML-1 >>


⑬ ② ③ ④ ⑤ ⑥ ⑦ ①
MAGICAL LIGHT
ML-1
CASIO
25 TONES
SONG BANK
POPS ROCK 8 BEAT 16 BEAT DISCO SLOW ROCK FUNK SWING BOSSA NOVA SAMBA MARCH WALTZ
SONG
⑭ ⑩ ⑪ ⑫ ⑨

<< ML-2 >>


⑭ ⑬ ① ② ③ ④⑤ ⑥ ⑦ ⑧ (ML-2 Only)
MAGICAL LIGHT
CASIO
ML-2
VOLUME
TEMPO
TONE
POPS ROCK 8 BEAT 16 BEAT DISCO SLOW ROCK FUNK SWING BOSSA NOVA SAMBA MARCH WALTZ
⑩ ⑪ ⑫ ⑨

① SONG BANK list

② VOLUME buttons

Use these buttons to change the volume setting.

Pressing △ increases volume, while ▽ decreases volume.

- Whenever you press either △ or ▽ VOLUME, the keyboard emits a "chirp-chirp sound to indicate that the volume setting is being changed.
- When the volume is at its maximum setting, pressing △ VOLUME does not change the setting, so there is no "chirp" sound. This is also true if you press ▽ VOLUME when the volume is at its minimum setting.

③ TEMPO buttons

Use these buttons to change the tempo (speed) of the rhythms.

Pressing △ increases tempo, while ▽ decreases tempo.

④ RHYTHM SELect button

Use this button to select the rhythm you want.

⑤ STOP button

Press this button to stop rhythm or SONG BANK tune play.

⑥ 25 TONES list

⑦ TONE buttons (1 to 5)

Use these buttons to input two-digit numbers to specify the tone you want. The 25 TONES list shows the 25 tones that are available, along with their tone numbers.

- Tone 11 PIANO is always selected automatically whenever you switch keyboard power on.
- The tone that is selected is the last one whose two-digit tone number you input.

⑧ LIGHT ON/OFF button (ML-2 only)

Press this button to switch the Magical Light Keyboard function on and off.

⑨ SONG BANK keys

Pressing one of the keys in this range while the MODE SWITCH is set to DEMO, ANY-KEY PLAY, or MELODY GUIDE starts playback of the Song Bank tunes. Song Bank tunes continue to play in sequence, or until you press the STOP button to stop play.

⑩ Keyboard

With the ML-2, black and white keys light as the corresponding notes are played. With the ML-1, only the white keys light. Note that it may be difficult to see keys light when using the keyboard under direct sunlight or in otherwise brightly lit areas.

⑪ SONG BANK numbers

⑫ RHYTHM list

⑬ MODE SWITCH

Use this key to switch power on and off and to select the mode you want to use. Details for each setting are provided elsewhere in this manual.

⑭ Speaker

CHOOSING A POWER SOURCE

You can power your keyboard with five AA batteries, standard AC power (with an optional AC adaptor) or by plugging in to the cigarette lighter of a car (using an optional car adaptor).

Installing the Batteries

This keyboard can be powered by five AA size (R6P/SUM-3,AM3/LR6) dry cell batteries. Make sure that the **MODE** switch ⑬ is set to the **POWER OFF** position when installing batteries.

1. Open the battery compartment cover on the bottom of the unit.
2. Load new batteries, taking care that the plus (+) and minus (–) poles are facing in the correct directions.
3. Replace the battery compartment cover.
   - Standard battery life is approximately 7 hours (ML-1) / 5 hours (ML-2) with R6P(SUM-3) manganese batteries.

Note

If do not perform any operation for about three minutes, a warning melody plays and the keys on the keyboard flash to remind you to switch power off.

Any one of the following symptoms indicates low battery power. Replace batteries or change to one of the alternate power sources whenever you notice any of these conditions.

- Abnormally low speaker or headphone volume
- Distorted sound output
- Continued sound output even after you release a key
- No output when a key is pressed, even though the key lights
- Continued lighting of a key even after you release it
- Sudden loss of sound output.
- Low keyboard lighting or complete failure of keyboard lighting when notes are played.
- A note that is totally different from the one you played
- Abnormal rhythm pattern and Song Bank tune play
- Failure of keyboard keys to light

Precautions

Incorrectly using batteries can cause them to leak or burst, and may damage your unit. Note the following precautions:

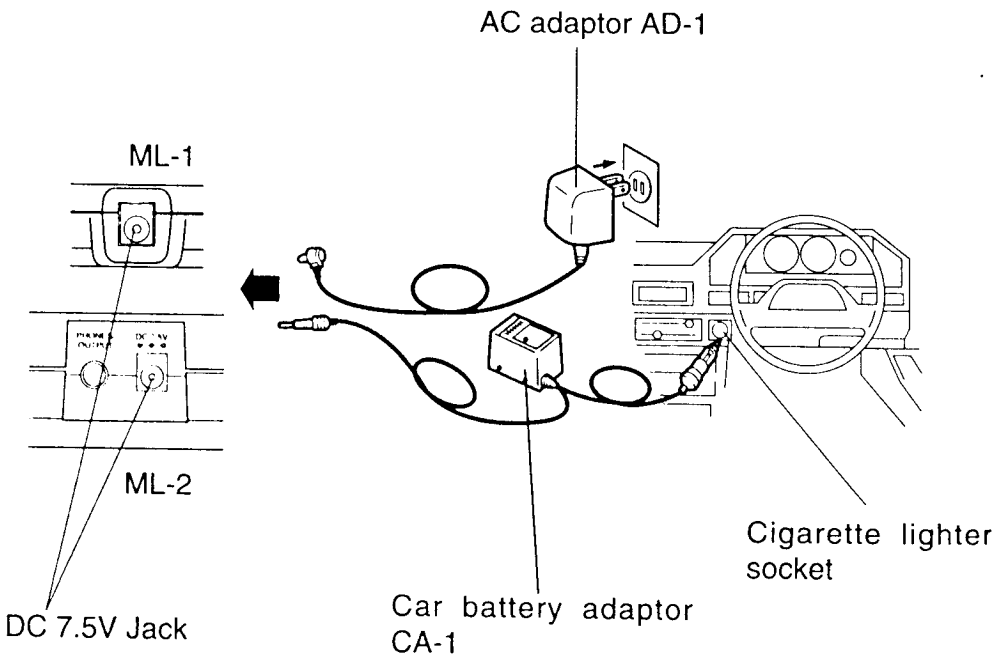
- Be sure that the plus (+) and minus (–) poles are facing in the correct directions.
- Do not mix battery types.
- Do not mix new batteries with old ones.
- Never leave dead batteries in the battery compartment.
- Remove batteries when you do not plan to use the unit for a long time.
- Never try to recharge the batteries that are specified for the power supply of this unit.
- Do not expose batteries to direct heat, let them become shorted or try to take them apart.
  If a battery leaks, clean out the battery compartment of the unit immediately, taking care to avoid letting the battery fluid come into direct contact with your skin.

Using AC Power

An AC adaptor (AD-1, optional) is required when using household current. Use only a genuine CASIO adaptor with the same voltage rating (100, 117, 220 or 240V) as the power supply in your area to prevent damage to internal components. Be sure to turn the power of the unit off before you connect the adaptor to the unit. Plug the AC adaptor into the AC outlet and the cord into the unit. This will automatically cut off the battery power supply.

Using a Car's Cigarette Lighter

With the car adaptor (CA-1 optional), DC power is supplied from a car battery through the cigarette lighter. Be sure to turn the power of the unit off before you connect the adaptor to the unit.



Important!

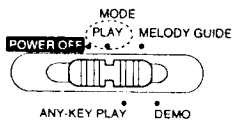
- The adaptor may become warm when it is being used. This is normal and does not indicate any problem.
- Be sure to unplug the adaptor from the power source when you are not using the unit.
- Whenever connecting or disconnecting the adaptor, be sure that the power of the unit is switched off.
- Be sure to unplug the car adaptor from the cigarette lighter socket when you are not using the unit. Leaving the car adaptor plugged in can cause damage or can run down your car's battery.
- Never connect the car adaptor to a 24V DC cigarette lighter (in a bus or truck). Doing so can damage the unit.
- Certain makers of cars may have non-standard cigarette lighter shapes or sizes. Be sure to check the size of your car's cigarette lighter before using the car adaptor.
- Never use a power supply that does not match that specified for the unit. Doing so can damage the adaptor or your unit.

PLAYING THE KEYBOARD

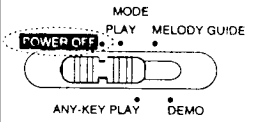
■ Switching power on and off

1. To switch power on, slide the **MODE** switch to the **PLAY** position.
   - When you switch power on, the volume of the keyboard is automatically set to maximum.

ML-1



2. To switch power off, slide the **MODE** switch to the **POWER OFF** position.

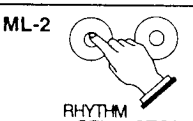


Important!
- Be sure to switch power off when you are not using the keyboard.
- Your keyboard is equipped with a power off reminder that automatically plays a short melody (corresponding keyboard keys light as melody plays) if you leave power on and do not perform any keyboard operation for about three minutes. To stop the reminder melody, perform a key or switch operation on the keyboard.

■ Selecting a rhythm

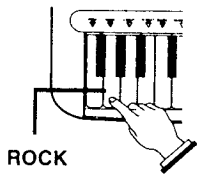
1. Press the **RHYTHM SEL**ect button.
   - Be sure to slide the MODE switch to the PLAY position.

ML-2



2. Press the keyboard key that corresponds to the rhythm you want to select.
   - As soon as you make a selection, the corresponding rhythm starts to play.

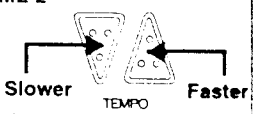
ML-2



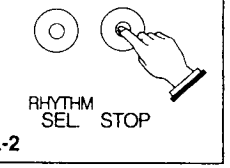
Example: To select ROCK.

3. Adjust the tempo of the rhythm.

ML-2



4. To stop rhythm play, press the **STOP** button.



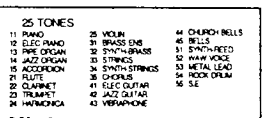
ML-2

Notes about TEMPO control

- Whenever you press either △ or ▽ **TEMPO**, the keyboard emits a "chirp-chirp" sound to indicate that the tempo setting is being changed.
- When the tempo is at its maximum setting, pressing △ **TEMPO** does not change the setting, so there is no "chirp" sound. This is also true if you press ▽ **TEMPO** when the tempo is at its minimum setting.
- Tempo can be set within a range of 40 to 255, in steps of 26.
- Tempo is always set at 107 whenever you switch keyboard power on.

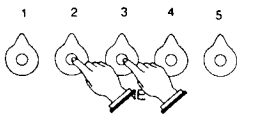
■ Selecting a tone

1. Find the tone you want to use in the tone list on the keyboard's console.



ML-2

2. Use the **TONE** buttons to input the two-digit number that corresponds to the tone you want to use.
   - To select 23 TRUMPET, for example, input 2 and then 3.



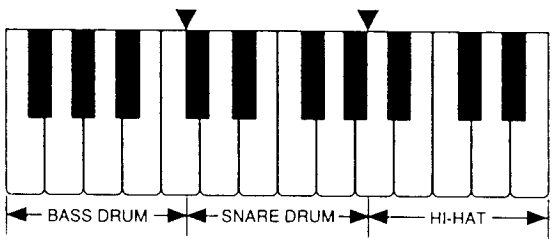
ML-2

■ About split keyboard tones

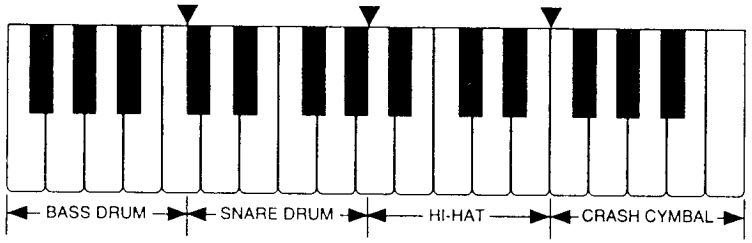
Tones 54 and 55 split the ML-1 keyboard into three sections, and the ML-2 keyboard into four sections.

" 54 ROCK DRUM "

<< ML-1 >>

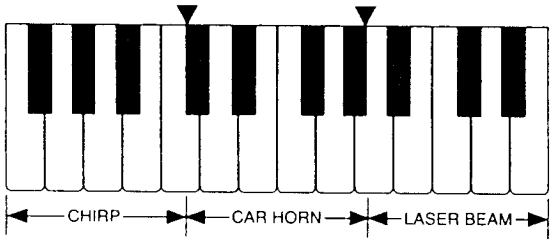


<< ML-2 >>

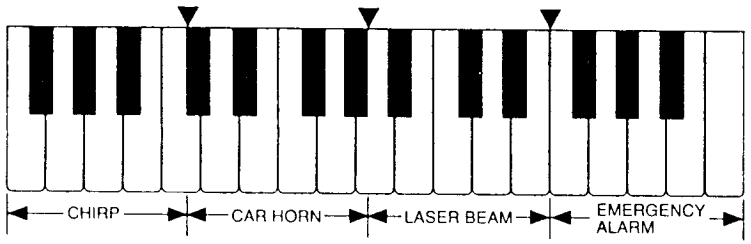


" 55 S.E. "

<< ML-1 >>



<< ML-2 >>



■ Polyphony

While the **MODE** switch is set to **PLAY**, you can play up to two keys at once (2-key polyphony). Even if you press more than two keys, only two notes will sound.
Note that the above also applies to the Magical Light keyboard —— up to two keys will light at the same time.

■ Digitally Sampled Tones

A number of this keyboard's tones are *digitally sampled*. This means that recordings of acoustic musical instruments are taken, and the recording is processed in order to make it possible to store the data digitally. Recordings are made for the low, medium and high ranges of the instrument. The point

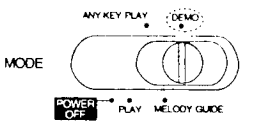
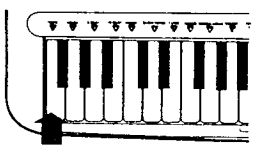
where a recording of one range stops and the recording of another range begins is called the *split point*.
Whenever you are using a digitally sampled tone, you are actually playing back the digital data recorded for that tone.

- The tonal quality and volume between recorded ranges may be slightly different. You may notice this difference when you play two notes on either side of a split point. This is normal and does not indicate malfunction of the keyboard.
- The pitch of some tones may be unclear.

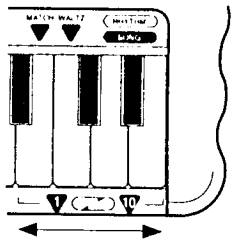
■ Playing Song Bank tunes

This keyboard comes with 10 SONG BANK tunes built in. You can use these Song Bank tunes with the keyboard's three lesson functions to learn how to play keyboard.
With the DEMO function, you can listen to the tunes to see how each one is played.
With ANY-KEY PLAY, you can practice your timing for playing the melody. No matter what key you press, the correct melody note is played.
With MELODY GUIDE, the keys of the keyboard light up to tell you what note you should play next.
As a further aid, a handy Melody Book is included with your keyboard.

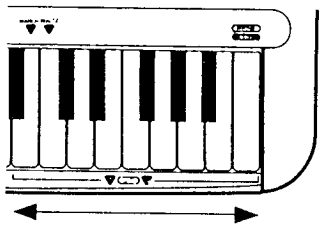
■ To use the DEMO function

1. Slide the **MODE** switch to the **DEMO** setting. • When you do, the keys of the keyboard light from left to right.	 ML-2
2. Press one of the far left keyboard keys to select the Song Bank tune you want to play. **Example:** To select MINUET, which is Song Bank tune 1 on the ML-2. • The tune you select starts to play immediately. • The MAGICAL LIGH keyboard lights to show you the notes as they are played.	 ML-2

- If you want to play all of the SONG BANK tunes, press one of the keys shown in the illustration below. SONG BANK tunes continue to play in sequence, or until you press the **STOP** button to stop play.



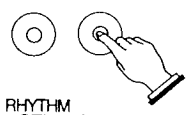
<< ML-1 >>



<< ML-2 >>

3. Playback of the SONG BANK tune stops automatically when the end of the tune is reached. If you want to stop along the way, press the **STOP** button.

ML-2



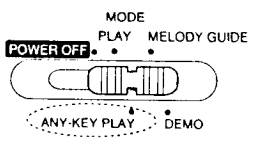
Notes

- You can adjust the TEMPO setting while a SONG BANK tune is playing.
- Song Bank tunes have their own automatic tone and rhythm settings. You can change these while a SONG BANK tune is playing, but if that tune's recording includes a tone or rhythm setting change, that change will occur where it is recorded.

■ To use the ANY-KEY PLAY function

1. Slide the **MODE** switch to the **ANY-KEY PLAY** setting.
   - When you do, the keys of the keyboard light from left to right.

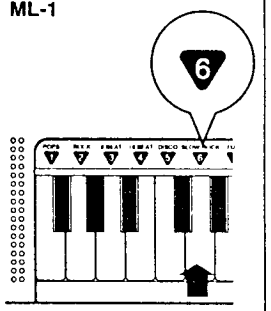
ML-1



2. Press one of the far left keyboard keys to select the SONG BANK tune you want to play.

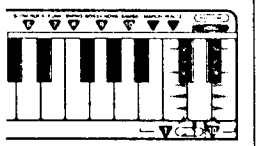
   Example: To select LONDON BRIDGE, which is SONG BANK tune 6 on the ML-1.

ML-1



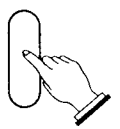
3. Press keyboard keys to play the melody of the tune you selected.
   - No matter what key you press, the correct SONG BANK tune note is played. Concentrate on getting the timing right.
   - With ANY-KEY PLAY, accompaniment play waits until you press a key.
   - As the tune plays, the key for the next note that will be played flashes on the MAGICAL LIGHT keyboard. At the point where that key's note is played, the key lights and the next note's key starts to flash.
   - Playback continues until the end of the tune is reached.

ML-1



4. To stop play of the SONG BANK tune before the end of the tune is reached, press the **STOP** button.

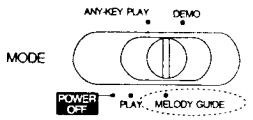
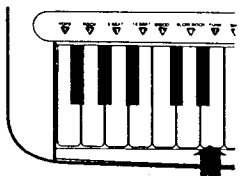
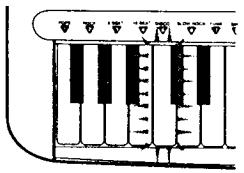
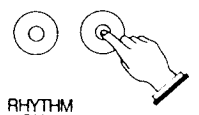
ML-1



Notes

- You can adjust the TEMPO setting while a SONG BANK tune is playing.
- SONG BANK tunes have their own automatic tone and rhythm settings. You can change these while a SONG BANK tune is playing, but if that tune's recording includes a tone or rhythm setting change, that change will occur where it is recorded.

■ To use the MELODY GUIDE function

1. Slide the **MODE** switch to the **MELODY GUIDE** setting. • When you do, the keys of the keyboard light from left to right.	 ML-2
2. Press one of the far left keyboard keys to select the SONG BANK tune you want to play. **Example:** To select TWINKLE TWINKLE LITTLE STAR, which is Song Bank tune 7 on the ML-2.	 ML-2
3. Play the melody of the tune by following the MAGICAL LIGHT Keyboard lights. • As the tune plays, the next key you should press flashes on the MAGICAL LIGHT keyboard. At the point where that key's note is played, the key lights and the next note's key starts to flash. • During intros, the key for the next note to play will flash. Wait until the key lights before pressing it. • With MELODY GUIDE, accompaniment play waits until you play the correct note. • Playback continues until the end of the tune is reached.	 ML-2
4. To stop play of the SONG BANK tune before the end of the tune is reached, press the **STOP** button.	ML-2 

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■ How to use the Magical Light Keyboard

In addition to telling you the correct note to play, the MAGICAL LIHGT keyboard also indicates the length of the note and the next note you will have to play.

- **What note to play now**
  The key for the note you should play lights on the MAGICAL LIHGT keyboard.
- **What note to play next**
  The key for the note you should play next flashes on the MAGICAL LIHGT keyboard.
- **How long to play a note**
  The key for a note stays lit as long as you should keep that key depressed.
- **How many times to play a note**
  When the same note should be played more than once, the corresponding MAGICAL LIHGT keyboard key lights, momentarily goes out, and lights again.

■ Switching the Magical Light Keyboard off (ML-2 only)

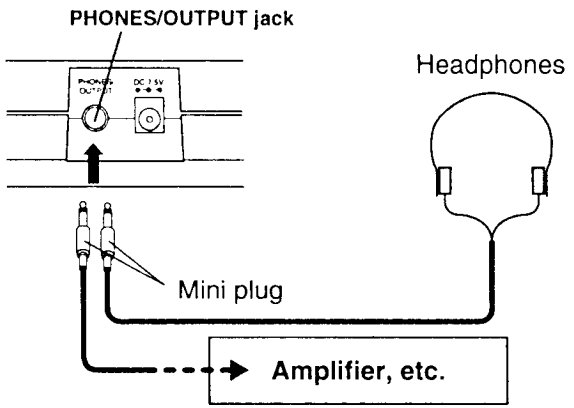
Press the **LIGHT ON/OFF** button to switch the MAGICAL LIHGT keyboard function off.

- The on/off status of the Magical Light Keyboard does not change if two or more keys are depressed or if a button is depressed when you press the **LIGHT ON/OFF** button.

EXTERNAL CONNECTIONS (ML-2 ONLY)

Use the ML-2's **PHONES/OUTPUT jack** to connect a set of headphones or to connect to an external amplifier.

<< ML-2 >>



- Plugging in headphones cuts off the keyboard's built-in speaker.
- When connecting to an amplifier, use a connecting cord that has a mini plug for the end that connects to the keyboard.
- When connecting to an amplifier, set the keyboard's volume to a low setting and adjust output volume on the amplifier.

TROUBLESHOOTING

Problem	Possible Causes	Remedy
No sound from the keyboard.	1. Power supply problem.	1. Check the power supply and correct as required. • Are battery poles (+/–) facing correctly? • Are batteries dead? • Is AC adaptor connected correctly? • Are you using the AC adaptor specified for this keyboard?
	2. Headphones connected (ML-2 only).	2. Unplug headphones from **PHONES/ OUTPUT jack.**
Following symptoms occur when using batteries. • Abnormally low speaker or headphone volume • Distorted sound output • Continued sound output even after you release a key • No output when a key is pressed, even though the key lights • Continued lighting of a key even after you release it • Sudden loss of sound output. • Low keyboard lighting or complete failure of keyboard. • A note that is totally different from the one you played • Abnormal rhythm pattern and Song Bank tune play • Failure of keyboard keys to light	Low battery power.	Replace the batteries with new ones.

CARE OF YOUR MUSICAL INSTRUMENT

Observe the following guidelines and your musical instrument will provide you with years of troublefree musical enjoyment.

- **Avoid temperature extremes, humidity, and direct sunlihgt.**
  Keep the musical instrument away from heaters and air conditioners.
  Also avoid keeping the musical instrument inside a car on hot days.

- **Severe impact and vibration can cause problems.**
  Do not leave the musical instrument in areas subjected to strong vibration.

- **Be sure to switch power off whenever you are not using the musical instrument.**
  Also, you should remove batteries from the musical instrument if you do not plan to use it for a long time.

- **Be sure to use only adaptors specifically recommended by CASIO.**
  Use of another adaptor can cause damage to the musical instrument or the adaptor, and will void your warranty.

- **Never pull on an adaptor's wire when unplugging it from a power outlet.**

- **Avoid using this musical instrument near televisions, radios, etc.**
  The digital circuitry of this musical instrument may cause interference with other electronic devices, such as televisions, radios, etc.

- **Be careful of liquids, dust, etc.**
  Do not let the musical instrument get wet and do not allow foreign matter to get between the keys. Be especially careful of metal objects, such as hairpins, sewing needles, coins, etc.

- **Never use lacquer, thinner, or similar chemicals for cleaning.**
  Use a soft cloth dampened in a weak solution of water and a neutral detergent to clean the musical instrument. Soak the cloth in the solution and wring out all excess water.

- **Never try to repair or modify any part of the musical instrument.**
  Any attempt to repair or modify the musical instrument can cause problems with operation.

SPECIFICATIONS

Model:	ML-1	ML-2
Number of keys:	24 (Micro-Mini)	32 (Mini)
Magical Light Keyboard:	White keys only	White and black keys
Preset tones:	25	25
Polyphony:	2 notes	2 notes
Rhythms:	12	12
Lesson functions:	DEMO, ANY-KEY PLAY, MELODY GUIDE	DEMO, ANY-KEY PLA\ MELODY GUIDE
Song Bank Tunes:	10	10
Tuning:	A4 = 442Hz fixed	A4 = 442Hz fixed
Speaker:	ø6.5 cm (output: 0.5W)	ø8.0 cm (output: 1.0W)
Input jacks:	7.5V DC power supply	7.5V DC power supply
Output jacks:	None	Phone/Output • Mini plug • 100Ω output impedanc • 1.6V (RMS) MAX ou put voltage
Battery Power:	Five AA-size batteries	Five AA-size batteries
Battery life:	Approximately 7 hours normal operation on SUM-3/R6P	Approximately 5 hou normal operation on SU 3/R6P
AC Power:	Requires optional AC Adaptor (AD-1)	Requires optional A Adaptor (AD-1)
Car Battery:	Requires optional Car Adaptor (CA-1)	Requires optional C Adaptor (CA-1)
Power consumption:	1.1W (on DC 7.5V)	1.5W (on DC 7.5V)
Dimensions:	326 x 137 x 35 mm $12\,^{7}/_{8}$" x $5\,^{3}/_{8}$" x $1\,^{3}/_{8}$"	415 x 208 x 57 mm $16\,^{3}/_{8}$" x $8\,^{1}/_{4}$" x $2\,^{1}/_{4}$"
Weight (including batteries):	0.55 kg (1.2 lbs)	1.05 kg (2.3lbs)

** Specifications are subject to change without notice.*

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